

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 33

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte DALE E. HUTCHENS
and NORMAN COHEN

Appeal No. 1996-3292
Application 07/991,467¹

ON BRIEF

Before CALVERT, GARRIS and McQUADE, Administrative Patent Judges.

CALVERT, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1, 5, 7, 8 and 20, all the claims remaining in the application.²

¹ Application for patent filed December 16, 1992. According to appellants, this application is a continuation-in-part of Application 07/827,171, filed January 29, 1992, now abandoned.

² In an amendment after final rejection, claims 1, 5, 7, 8 and 20 were amended, and claims 6, 11 to 15 and 17 were cancelled.

Appeal No. 1996-3292
Application 07/991,467

On December 11, 1997, a panel of this Board³ remanded the application to the examiner who, pursuant thereto, issued an amended answer on April 22, 1998 (Paper No. 27). Appellants having thereafter filed a reply brief on June 19, 1998 (Paper No. 28), the case is before us for decision on the merits.

The claims on appeal are drawn to a rocket motor liner composition, and are reproduced in the appendix to appellants' brief.

The references currently applied in rejecting the appealed claims are:

Marion et al. (Marion)	3,714,047	Jan. 30, 1973
Daume	4,021,514	May 3, 1977
Graham et al. (Graham)	4,803,019	Feb. 7, 1989
Herring	4,878,431	Nov. 7, 1989

Claims 1, 5, 7, 8 and 20 stand rejected on the following grounds:

- (1) For failure to comply with 35 U.S.C. § 112, first and second paragraphs;
- (2) As unpatentable over Daume in view of Marion, Graham and Herring.⁴

³ Panel consisting of Administrative Patent Judges (APJs) Calvert, McQuade and Weiffenbach. APJ Garriss has been substituted for APJ Weiffenbach, who has retired.

⁴ In the final rejection, the basis of this rejection was Marion in view of Graham, Willer et al. (Pat. No. 5,071,495), Ducote (Pat. No. 4,913,753), Herring and Daume. It was recast into its present form in the examiner's answer.

Rejection (1)

(a) 35 U.S.C. § 112, Second Paragraph

The examiner asserts that the appealed claims do not comply with § 112, second paragraph, because: (i) in the Markush group recited in claim 1 (and claim 20), the group members "polyethers" and "polyglycols" overlap; (ii) the compound recited in claim 5 is not a catalyst for curing all polymers, and therefore impliedly limits claim 5 to the polymers for which it is a catalyst; (iii) the expression "formulated such that" in claims 1 (and 20) is indefinite. We will treat these grounds seriatim.

(i) It has been held that a claim in which two members of a Markush group overlap, i.e., are not mutually exclusive, is indefinite because such overlap constitutes double inclusion of an element. See, e.g., Ex parte Clark, 174 USPQ 40, 42 (Bd. App. 1971). However, there is no automatic "rule against double inclusion", In re Kelley, 305 F.2d 909, 916, 134 USPQ 397, 402 (CCPA 1962), but rather, in determining whether a claim complies with the second paragraph of § 112, the question is whether that claim "reasonably apprises those of skill in the art of its scope." In re Warmerdam, 33 F.3d 1354, 1361, 31 USPQ2d 1754, 1759 (Fed. Cir. 1994). In the present case, notwithstanding that there is overlap between "polyethers" and "polyglycols", we do not consider that one of ordinary skill would have any doubt as to the scope of the Markush group recited in claims 1 or 20.

(ii) Although the dibutyltin dilaurate may only be a cure catalyst for some of the polymers recited in claim 1, claim 5 does not recite that it is a catalyst, but simply recites a percentage range of the compound. Thus, as appellants argue on page 5 of their reply, the scope of claim 5 is not indefinite "since it merely requires the presence of dibutyltin dilaurate in the [claimed] composition."

(iii) We do not consider the recitation that the composition is "formulated such that it is capable of providing an adhesive and insulation layer [etc.]" to be indefinite, since in essence all this recitation sets out is, according to the specification, the result of the composition previously set forth in claims 1 and 20.

(b) 35 U.S.C. § 112, First Paragraph

The examiner finds that appellants have not complied with the enablement requirement of § 112, first paragraph, because (amended answer, page 4):

[s]ince appellants are vigorous in arguing the excellent low smoke properties alleged for the claimed composition, it would appear that this is in fact a critical feature of their invention, although not now claimed, MPEP 2164.08(c). When one regards the prior art, Daume, e.g., where the use of aliphatic polyethers and polyesters is taught as producing lower smoke, with examples that show that aromatic content produces more smoke, it is apparent that appellant's specification is lacking. Nowhere in the claims is there any recitation beyond "polyethers, polyglycols, polyesters," There are a few limited examples of the invention that are described and can be practiced, yet, it is not clear what variable are necessary to obtain the taught and vigorously argued benefits. Thus, undue experimentation within the broad outlines of the claim limitations would be required to practice the full claimed breadth of the invention.

"In order to satisfy the enablement requirement of § 112, paragraph 1, the specification must enable one of ordinary skill in the art to practice the claimed invention without undue experimentation." National Recovery Technologies Inc. v. Magnetic Separation Sys. Inc., 166 F.3d 1190, 1196, 49 USPQ2d 1671, 1676 (Fed. Cir. 1999). In the instant application, appellants disclose that a low smoke producing liner, which is an object of their invention (page 7, lines 16 to 21), may be formulated of an oxygen containing polymer, such as those recited in claims 1 and 20 (page 6, lines 1 to 4), together with a curing agent; also (page 7, lines 7 to 12):

As mentioned above, the present invention also consists of a filler such as dicyandiamide (DCDA), ammonium nitrate, or silica. It is found that this filler further mitigates heavy black smoke production. As a result of the use of the filler in the overall liner formulation, it is found that the composition of the present invention produces much less smoke output than conventional liners.

Independent claims 1 and 20 set forth, inter alia, the disclosed polymers and the above-described three specific fillers, together with their percentage ranges, which appellants disclose will yield the desired liner composition. Also, the specification includes examples of compositions within these parameters.

We do not regard the disclosure of Daume to which the examiner refers, supra, as showing that "appellant's [sic] specification is lacking". Although Daume may attribute a reduction in smoke to the absence of aromatic content, appellants disclose that it is due to the combination of polymers, fillers, etc. disclosed by them. Moreover, even if appellants' claimed composition would not achieve low smoke output, the claims do not recite low smoke properties, but only require that the composition be

capable of providing an adhesive and insulation layer, and we find no indication that there is a lack of enablement of the composition as claimed.

Accordingly, rejection (1) will not be sustained.

Rejection (2)

The primary reference, Daume, discloses an inhibitor coating for solid propellant charges comprising an insulating layer containing a binder and a filler, and a protective and adhesion layer. As noted by the examiner, the binder of the insulating layer may be a polyether and a hardener (curing agent) (col. 4, lines 1 to 4). Various materials are disclosed as possible fillers; Daume states that it is known to use inorganic substances such as quartz (silica) (col. 3, lines 24 to 26), but that cooling agents, particularly aluminum hydroxide, are more suitable than the inert fillers (col. 3, lines 48 to 65).

Appellants argue, first, that, "[u]nlike the claimed invention, the insulating layer disclosed in Daume does not function as an adhesive or an insulator" (reply brief, page 6).

We do not agree because, first, it is not evident why an "insulating layer" would not be an "insulation layer" as called for by the appealed claims. Secondly, although Daume also uses an adhesive layer, it is disclosed at col. 4, line 6 et seq., that measures a and b should be undertaken with respect to the binder of the insulating layer so that there will still be "satisfactory adhesion" (col. 4, lines 10 and 11). It therefore appears that Daume's insulating layer has adhesive properties.

Appellants further argue that (reply brief, page 7):

Daume fails to disclose that its insulating layer comprises 20-40% filler selected from the group consisting of dicyandiamide, ammonium nitrate, and silica, which is the claimed and preferred concentration range for decreasing smoke output.

As noted above, Daume does disclose silica (quartz) as a filler, although it is indicated to be not as suitable as the cooling agents. As for the amount or percentage of quartz which should be used, Daume provides no specific figures. It is however, suggested at col. 2, lines 65 to 68, that there should be "the largest possible proportion of a fine grain filler possessing high packability," and the proportion of aluminum hydroxide filler is disclosed as 60 to 62 percent by weight (col. 3, lines 66 to 68). By contrast, appellants' claims 1 and 20 recite filler ranges of about 20% to about 40% (claim 1) and about 5% to about 50% (claim 20).

The examiner takes the position that the recited filler percentages would have been obvious in view of the disclosure of Marion, particularly col. 4, lines 1 to 3, and Example 4. However, we do not consider that Marion would have suggested providing the Daume composition with a percentage of quartz filler within appellants' claimed range, because Marion's disclosure concerns organic coolants (fillers), such as ammonium oxalate, oxamide or urea, not inorganic fillers.⁵

⁵ As appellants note (reply brief, page 7), the ammonium nitrate mentioned by Marion at col. 5, line 19, is disclosed as an oxidizer, used in addition to the coolant.

The Herring patent, which the examiner characterizes as "cumulative", does disclose quartz as a filler (reinforcing material), and lists rocket motor insulating compositions having 20% silica (the examiner notes Table 1, Example E). However, it is fundamental that under § 103, references can be combined only if there is some suggestion or incentive to do so. ACS Hospital Sys., Inc. v. Montefiore Hospital, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). In order to combine Daume with Marion and/or Herring, one of ordinary skill would have to ignore Daume's disclosure that there should be "the largest possible proportion" of filler, and the showing in Tables I and II that in general a reduction of filler (cooling agent) below 60% causes increased smoke. We do not find any suggestion or incentive in Marion or Herring for so modifying Daume, and believe that any such suggestion would be based upon impermissible hindsight gleaned from appellants' disclosure, rather than from the prior art.

Graham, the other secondary reference applied, does not supply the deficiency discussed above.

We therefore will not sustain rejection (2).

Appeal No. 1996-3292
Application 07/991,467

Conclusion

The examiner's decision to reject claims 1, 5, 7, 8 and 20 is reversed.

REVERSED

IAN A. CALVERT
Administrative Patent Judge

BRADLEY R. GARRIS
Administrative Patent Judge

JOHN P. McQUADE
Administrative Patent Judge

)
)
)
) BOARD OF PATENT
) APPEALS AND
) INTERFERENCES
)
)
)
)
)

IAC/dal

Appeal No. 1996-3292
Application 07/991,467

PILLSBURY, MADISON & SUTRO, LLP
CUSHMAN, DARBY & CUSHMAN
IP GROUP
1100 NEW YORK AVENUE, N.W.
WASHINGTON, D.C. 20005-3918